From farmers to entrepreneurs: The importance of associative behavior

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From farmers to entrepreneurs: The importance of associative behavior

Abstract

Sustainable development of the agricultural land requires the development of entrepreneurial and organizational competency in farmers. However, the educational processes involved in such development have been insufficiently studied, especially in emerging economies. This research aims to explore the early stages of the process of transformation from farmers to entrepreneurs, through in-depth interviews with participants in a public pilot project in Mexico. Results suggest that associative behavior of farmers is a key element in the process of improving entrepreneurial and organizational competency in the agricultural land.

Keywords: entrepreneurial education, farming, sustainable agricultural land.

Introduction

Sustainable development of agricultural land requires the development of entrepreneurial and organizational competency in farmers. The need for an entrepreneurial culture in the agricultural sector has been recognized in recent decades (Bergevoet et al., 2005; McElwee & Bosworth, 2010). In some countries, such as those composing the European Union, researchers have taken on the task of investigating the factors and educational processes that contribute to the development of entrepreneurial capabilities in farmers, with the aim of spurring successful growth in the agricultural business (Pyysiäinen, Anderson, McElwee, & Vesala, 2006) and increasing productivity in order to ensure farmers’ survival as well as the improvement of their environment (Marsden & Smith, 2005). For these purposes, farmers can either be integrated vertically inside a chain of value or diversify their economic activities (Carter, 2003; Haugen & Vik, 2008; McElwee, 2006; McElwee & Bosworth, 2010).

In other aspects, the collective action of farmers deserves special attention. The lack of organizational competency prevents farmers from presenting a unique front for the defense of their interests, for example, in dealing with intermediaries, or in achieving more efficient production models (Cortés, 1993). The welfare consequences of incentives and disincentives for collective entrepreneurship, in which each member has personal wealth at risk, can play an important role in market development and economic development policies (Cook & Plunkett, 2006).
Farming is not a homogeneous sector; farmers operate in a complex, multi-faceted environment which is tightly constrained and regulated. This environment acts as a significant barrier to entrepreneurial activity (Carter, 2003; McElwee, 2008a). An important challenge for the agricultural sector consists of facilitating farmers’ development of entrepreneurial and organizational capacities and attitudes; this requires economic support and a greater emphasis on education and training (McElwee, 2006).

Research on the development of entrepreneurial and organizational competency in farmers is scarce, especially in emerging economies. Although its implications in public policy have been discussed thoroughly, several dimensions of the topic deserve in-depth study, particularly: business strategies, the entrepreneurial capacities of farmers, women entrepreneurs in agriculture, the associative behavior of farmers, and the required support for farmers and agricultural organizations (Bruton, Ahlstrom, & Obloj, 2008; Carter, 2003; McElwee, 2006).

This research aims to explore the early stages in the entrepreneurial education process of farmers. To this end, the preliminary impact of the public pilot project “Entrepreneurial Organization in Irrigation Units” (PROEUR) is analyzed. Through this natural experiment, a developmental model centered on the individual is implemented in the Mexican agricultural sector. By developing entrepreneurial and organizational competency, farmers are expected to be able to work in an organized manner and develop sustainable competitive advantages in order to compete successfully in regional, national and international markets. The PROEUR project, implemented by the National Water Commission (CONAGUA) and the National Association of Irrigation Units (ANUR), also seeks more productive water use in the agricultural sector. Underdevelopment of agricultural land and unproductive agricultural water use are complex problems in Mexico that deserve more extensive attention.

**Agricultural land and water use in Mexico**

**Mexican Agricultural Land**

Several factors in recent Mexican history have structurally weakened the agricultural sector, primarily: the agrarian policies implemented during the presidential periods prior to the economic opening of the 1980s; recurrent financial crises; the remarkable increase in external debt; capital flight; recurrent inflation and multiple devaluations. These factors have provoked a significant decrease of the prices and consumption of agricultural products, a brutal fall of investment in rural regions, and a sudden, dramatic reduction of agricultural credit. Consequently, agricultural production and productivity have been declining, resulting in a loss of alimentary sovereignty and increasing migration on the part of the rural population to urban areas as well as to the United States (Cortés, 1993).

The liberalization of the economy that began in the 1980’s and received a significant boost with the North American Free Trade Agreement has importantly impacted various sectors of the Mexican life, including agricultural land.
With the declared purpose of preparing the agricultural sector to respond to the economic, technological, and social requirements necessary for its evolution (i.e. economic liberalization), the Agrarian Law Reformation of 1992 brought to a close almost eight decades of land allotment, and recognized the full right of ejidatarios and comuneros\(^1\) to define their own form of property and association, as well as the ability to transfer property rights, through the sale and even change of ownership type (SRA, 2006). The aim was to induce the association of ejidatarios and comuneros with entrepreneurs, with the financial support of the World Bank and the International Monetary Fund. However, rather than solving the problems of the agricultural sector, the privatization of public land provoked a neo-latifundism and a mass expulsion of farmers from their land (Cortés, 1993).

Today, two decades after the beginning of these reformations, Mexican agriculture continues in a state of stagnation. As of the second quarter of 2008, 13% of the labor force was in the primary sector, producing only 4% of the GDP. During the period of January – July, 2008, net food imports ascended to 2.5 billion dollars, 160% more than that of the previous year (INEGI, 2008). In 2003, Mexico produced on average 2.5 tons of corn per hectare, while its main commercial partner, the United States, averaged 8.9 tons per hectare (FAOSTAT, 2008).

This low productivity of Mexican agriculture has been mainly attributed to: the erroneous logic in agricultural production; technologies and inputs that do not function in Mexican agriculture-ecosystems, provoking environmental imbalances; the lack of investment, credit, subsidies and tariffs; the deterioration of competitive conditions due to the commercial opening of the country; the opportunism of national and international entrepreneurial groups; and organizational deficiencies on the part of farmers (Cortés, 1993). Up to now, the government's efforts to motivate the creation of cooperatives and other types of productive rural organizations have not yielded the expected results. The legal concepts created for organizing Mexican land, from the ejido to the Rural Production Societies, have followed only political interests, rather than productive and market criteria. For a significant period of time, Mexican agriculture has experienced a lack of integrated strategy and developmental methodology based on human and social capital formation. This has resulted in constant “jolts” that have sowed confusion and disorder, producing a primary sector that lives in survival conditions, intensive in cheap workforce, and dispersed, which generates little added value (Espinosa, 2007).

**Agricultural Water Use**

In Mexico, 77% of all available water is used for agricultural purposes. Of this, only 33% to 55% is used effectively. As water is a resource of crucial importance for the present and future life of the country, the National Water Program 2007-2012 established among other objectives, that all Mexicans use water in an efficient way and pay a fair amount for its consumption, and that aquiferous resources be preserved, so that they contain clean water, in order to

\(^1\) Ejidatarios and comuneros are both terms defined in the Mexican agrarian law referring to men and women having property rights on a common territory called ejido.
guarantee the current and future wellbeing of Mexicans, as well as the conservation of the environment. Nevertheless, agricultural consumption is exempt from water payment (CONAGUA, 2008).

The growth and increased mobility of the population, the hydrological characteristics of Mexico, the inefficacy in the use and conservation of water, as well as the overexploitation of aquifers, have magnified the problem of water shortages. In 56 years, the availability of water per inhabitant fell from 18,035 to 4,416 cubic meters per year. This situation is expected to worsen further as a consequence of manifestations of climatic change such as hurricanes and droughts (CONAGUA, 2008).

Of the total surface dedicated to agricultural activities in Mexico, nearly 30% is irrigated; the rest relies on seasonal rainfall. However, irrigated land generates more than half of the national agricultural production. Of the total irrigated surface, 3 million hectares (46%) correspond to Irrigation Units. Water is pumped to the plots through an extensive infrastructure of channels and pipes (CONAGUA, 2008). Unfortunately, the practice of plot flooding, through the traditional “rolling irrigation” system, is still very common among Mexican farmers.

The National Water Program 2007-2012 aims to increase water productivity by 2.8% annually through the modernization and improvement of irrigation technology. Water productivity is measured by dividing the kilograms obtained from a specific product by the cubic meters of water used in the process. In 2006, water productivity was 1.41 kg/m³ on average. The practical difficulty of this goal lies in determining the volume of water extracted from the aquifer and the volume of water effectively used on agriculturally productive land. However, introducing the concept of water as productive input and its measurement in terms of value added by volume is of fundamental importance in identifying the most productive uses for this scarce resource (through alternating crops), thereby optimizing its application, and expanding the vision of farmers towards industrial and service activities (CONAGUA, 2008).

**Theoretical framework**

Sustainable development has been described as a process of achieving human development in an inclusive, connected, equitable, prudent, and safe manner. It embraces ecological, social, and economic interdependence (Galdwin, Kennelly, & Krause, 1995), and requires the development of human and social capital (Rudmann, Vesala, & Jäckel, 2008; Van der Sluis, Van Praag, & Vijverberg, 2005). In order to spark sustainable development of the agricultural sector, farmers must assume responsibility for their own development by adopting new principles, values, attitudes and behaviors that lead to a liberation of social energy, with synergistic results (Espinosa, 2007).

In his typology of individual entrepreneurial farmers, McElwee (2008b) identifies two pertinent types of farmers. First, the farmer as farmer, who tends to engage in limited diversification and depends on push factors. His or her strategic orientation is based on cost-price reduction with little awareness of market opportunities and individualistic orientation. And
secondly, the *farmer as entrepreneur*, who identifies and exploits non-farming or high-value agricultural opportunities based on the farm’s resources in flexible and innovative ways. Developing entrepreneurial competency in the agricultural sector means bringing the farmer from the *farmer as farmer* position to the *farmer as entrepreneur* level through an educational process.

Schumpeter (2005) portrayed the entrepreneur as a “leader motivated by the urge of act who performs the entrepreneurial function of carrying out new combinations” (p. 111). In Schumpeter’s vision, the entrepreneur is an agent of change who disturbs the equilibrium of the steady state. From the resource base view, the entrepreneur will successfully compete as he or she develops, and will maintain unique capacities that allow him or her to take advantage of opportunities and neutralize risks (Barney, 1991).

Among those capacities required for the success of an entrepreneur, two highly related concepts have been widely mentioned in the entrepreneurship literature: entrepreneurial orientation and market orientation, (Baker & Sinkula, 2009; Slater & Narver, 1995). Organizations with high entrepreneurial orientation distinguish themselves by: 1) constant innovation in their products and markets; 2) proactive decision making, and aggressive competition with other companies, and; 3) risk taking in business (Basso, Fayolle, & Bouchard, 2009; Covin & Slevin, 1988; 1989; Miller, 1983; Kreiser, Marino, & Weaver, 2002). These three dimensions have also been recognized as important entrepreneurial attitudes in the agricultural sector (Lauwere, 2004; Nieuwenhuis, 2002; Pyysiäinen, Anderson, McElwee, & Vesala, 2006; Rudmann, Vesala, & Jäckel, 2008).

Market orientation, in turn, has been defined as the willingness of the organization to continuously deliver higher value to its customers. It entails the commitment to continuous information gathering about and coordination of customers’ needs, competitors’ capabilities, and the provisions of other significant market agents and authorities (Han, Kim, & Srivastava, 1998). Both entrepreneurial and market orientation help the entrepreneur identify business opportunities and plan strategically, which are major requirements for farmers to compete successfully (McElwee, 2008b).

On the other side, organizational competency is also important in the agricultural sector. As the majority of farmers only own between 1 and 3 hectares of land, they need to work together in order to present a united front for the defense of their interests, in dealing with intermediaries, and in achieving more efficient production models, such as those achieving economies of scale (Cortés, 1993; McElwee, 2006; 2008b).

Social networks, often understood as the webs of interpersonal relation in which most actions of people or entities are embedded (Granovetter, 1985), can be especially useful for agricultural entrepreneurs as they can help supplant weak institutions and attain the collective efficiency necessary to overcome infrastructure constraints in order to speed up market
entries (Mesquita & Lazzarini, 2008; Svetlicic, Jaklic, & Burger, 2007). Indeed, organizations of farmers should embrace inter-organizational networks in order to remain competitive in today’s markets (Burt, 2000; Quatman & Chelladuri, 2008).

Entrepreneurial and market orientation, as well as organizational competency and the ability to use social networks, are important capacities upon which farmers can build competitive advantages to help them succeed in free markets and eventually achieve sustainable development. In the process of developing such competency, farmers must become less dependent on government subsidies, respond to the growing demand for quality, and respect the natural environment (McElwee, 2008b).

However, developing entrepreneurial and organizational competency in the agricultural sector can be problematic. On the one hand, to what extent can such competency be passed on? The creation of a new business based on the perception of opportunity, the work that implies, progressing from an idea to a concrete and valuable proposal, and obtaining the resources necessary, seem to be more an art than a science. Consequently, educational processes are required for farmers in order to develop such competency (McElwee, 2006).

On the other hand, the heterogeneity of the agricultural sector hinders the teaching of entrepreneurial and organizational attitudes, abilities, and behaviors (Carter, 2003; McElwee, 2006; 2008a; Pyysiäinen, Anderson, McElwee, & Vesala, 2006; Vesala, Peura, & McElwee, 2007). The background and profile of an individual (his or her self-perception, cultural traditions, social and institutional structures) can strongly impact his or her willingness and capacity to learn and develop entrepreneurial and organizational competency (Dana & Dana, 2007; Pyysiäinen, Anderson, McElwee, & Vesala, 2006; Rudmann, Vesala, & Jäckel, 2008; Vesala, Peura, & McElwee, 2007; Vesala & Vesala, 2010).

Lauwere (2004) found that self-criticism, perseverance, leadership, creativity, initiative, and market orientation positively affect entrepreneurship in agriculture; while “love of ease” and passivity have a negative effect. Regarding age and education, Carter (2003) found that younger and better-trained farm owners show more diversified business activities, are more likely to have a positive attitude towards new market opportunities, a good appreciation of and sensitivity to customer needs, and are more willing to engage in new ventures. Other researchers have found similar results (McElwee & Bosworth, 2010).

Furthermore, the competitive environment farmers confront can be harsher than those in other sectors. The lack of appropriate regulation, subsidies and tariffs can make the farming production cycle a very complicated one. Also, new policy incentives and market requirements can suddenly and radically transform the agricultural arena (Rudmann, Vesala, & Jäckel, 2008).

In addition, the availability of physical resources on agricultural land, (e.g. irrigation infrastructure, machinery, and equipment) has a significant impact on business performance and diversification. For example, pressurized watering...
systems can significantly improve the effectiveness of water application and therefore the productivity of crops. Additionally, using spare capacity of physical assets can reduce the costs and risks associated with diversification (Forsman, 2003).

**Method**

In this study, a natural experiment is used to explore the early stages of the entrepreneurial educational process for farmers. The public pilot project, PROEUR (Entrepreneurial Organization in Irrigation Units) offers this condition.

**Antecedents of PROEUR**

The 2007 – 2012 National Development Plan outlined the campaign for human sustainable development, based on the belief that all Mexicans must have a worthy life without risking the patrimony of future generations. With this purpose, and in support of the strategies formulated in the 2007-2012 National Water Program regarding the development and consolidation of agricultural water consumer organizations, CONAGUA, through the General Sub-Bureau of Hydro-Agricultural Infrastructure (SGIH) and ANUR, established a series of strategies oriented towards promoting the efficient use and responsible management of water by agricultural organizations. Consequently, in March of 2007, the project “Strategic Development of Human and Social Capital Operating in Irrigation Units” was implemented. From this project, it was found that agricultural consumer organizations had frequently functioned exclusively to receive government subventions, impacting very little the entrepreneurial and organizational competency of their members. In most cases, the economic activity of farmers was centered on the product itself and almost no market orientation was displayed (PECED, 2007).

The paternalistic attitude of the government towards the agricultural sector inhibits the emergence of entrepreneurial attitudes and behaviors in Irrigation Units. Individualism, lack of organization, resistance to change, indifference, and distrust are important barriers to entrepreneurship. The support given by the government has been distributed unequally, concentrating financial assistance on those farmers who have a lesser need for support. It is still possible to find “caciques” (local political leaders) leading the organizations of farmers and channeling the benefits from the public assistance to personal or political interests. Distribution channels are controlled by intermediaries or "coyotes", who receive a disproportionate portion of the business benefits while making market connections difficult for farmers. Most farmers are aging, and new generations do not want to work the land. A final barrier is extremely limited participation of women in farming organizations (less than 10%).

In spite of these barriers, worthy leaders were identified. Some organizations showed good performance, and 50% showed awareness of the economic value of water, taking responsibility for the maintenance of the hydro-infrastructure.
addition, several organizations had adopted appropriate technologies, considering their circumstances, and learned how to market their products successfully, and even to export (PECED, 2007).

Based on this experience, in 2008, CONAGUA and ANUR started PROEUR.

**Objectives of PROEUR**

Through PROEUR, CONAGUA aims to motivate the organizations of farmers in Irrigation Units to form Limited Liability Societies, so that they can: obtain a wider benefit from the existent programs; operate, conserve, and appropriately manage hydro-agricultural infrastructure; use water efficiently and increase the productivity of land plots; avoid exceeding the allotted water volume; and respect the unique sowing permits they receive from agricultural authorities.

The particular objectives of PROEUR are: the creation of agricultural business models with high profitability that attract the required investments to the agricultural sector; the development of economies of scale, through the organizational efficiency of farmers; and the recovery of the aquifer, through efficient and effective water use. It was expected that these elements, as a whole, would contribute in a systematic way to the sustainable development of Mexican agriculture.

**Logical Framework of PROEUR**

In pursuing its objectives, PROEUR implements a developmental model which is centered on the individual and on the development of his or her entrepreneurial and organizational competency. Development, in this approach, means a state of continuous improvement that brings the individual near the fulfillment of his or her personal mission. It is cultivated, mainly, through educational processes, and is based on the search for transcendent objectives in ecological, social, and economic dimensions (O. Tenopala, April 2007. Promoters Workshop *Modelo de Desarrollo Humano Integrador*, offered at the Colegio de Ingenieros by Pensamiento Creativo Desarrollo y Empresarialidad, S.C., Mexico City).

PROEUR identifies four different performance levels: subsistence (preoperative), management (objective oriented or operative), strategic, and, responsible performance. These performance levels are an adaptation to the entrepreneurial development context of the four levels of conscientiousness proposed by Bernard Lonergan (2001): empiric, intellectual, rational and responsible. In his analysis, Lonergan suggests that each level of conscientiousness is determined by the kind of relationship the subject establishes with the object, through a series of conscious operations. Each level rises above the previous one, and it is not a matter of choice which level an individual is located in. The subject’s consciousness is transformed due to a mutual operation between the subject that knows and the object that it seeks to know. To know is to begin a process that embraces the four levels and culminates in the transformation of the subject and his or her reality.

**Implementation of PROEUR**

In PROEUR, each organization of agricultural producers is advised and accompanied for three years by a promoter, a person or a company that acts as an entrepreneurial development agency. The promoter conducts an educational
process that involves training, planning, organizing, and teamwork activities. This process begins with an initial diagnosis, performed by the promoter, and results in action plans, made by the farmers, which must include quantifiable objectives and specific tasks, with their corresponding deadlines and responsible parties.

PROEUR began in 2008, with 41 farmer organizations from 26 Mexican States (out of a total of 32), corresponding public officials from CONAGUA, referred to as links, and 27 promoters. In its second year, 2009, PROEUR was expanded to include 81 farmer organizations.

Farmer organizations. These were selected by CONAGUA, based on the following criteria: acceptance on the part of the corresponding link to participate in the project; organizational capacity of farmers, in link’s estimation; and the voluntary acceptance of farmers as an indicator of their openness to adopting new ways of thinking.

Though at the onset, most organizations displayed subsistence levels and poor management capabilities, they were above extreme poverty line, as they possessed land and irrigation systems. Frequently, the farmer’s family was involved in cultivation work, especially at the lowest economic levels. However, some farmers used pressurized watering infrastructure, hired workers, and were, in fact, successful entrepreneurs.

Links. These were invited to participate by the Irrigation Units Office. Though initially four links openly manifested their nonconformity with the project, almost all continued throughout the year.

Promoters. These were chosen based on their experience and capacities in the entrepreneurial promotion, particularly among agricultural businesses. Promoters were invited to participate in a series of workshops about the developmental model and its implications for farmer organizations. The final selection was based on analysis of applicants’ résumés and their performance on the exams they took during the workshops.

Other definitions. In PROEUR, a project is any arrangement of farmers, a link, and a promoter. Each project is registered in the online information system, which is used to report advances to the CONAGUA Central Office. An Irrigation Unit is defined as the territory identified as such by CONAGUA.

Data collection

In order to explore the early stages of the educational process, in-depth interviews with farmers, promoters and links were carried out between February and March of 2010. Interviews were performed in the same place where the farmers used to meet. In total, 28 interviews were done: 18 farmers, 7 promoters and 3 links. Interviews were recorded in audio in order to carry out a meticulous analysis of their content. All interviews were performed by an external element, unaware of the rest of the processes inside PROEUR. In order to improve the impartiality of the comments, the interviewer maintained strict confidentiality in the handling of the interviewees’ contributions. Interview guides are available under request.
A convenient sample of eight projects, four in the first year and four in the second year of the pilot project, was selected by the researchers to participate in the evaluation process.

**Data analysis**

Each recorded interview was transcribed into a matrix in order to analyze all comments according to the different topics that were proposed or emerged during the interviews. A content analysis was performed, distinguishing two basic kinds of organizations: firstly, those that act as a single productive unit, count with pressurized watering systems and get high yields (also called “bees”), and; secondly, those that do not work as a single productive unit, have only been established to get financial support from government and get low yields (also called “crabs”).

The answers of farmers were grouped in the following topics: perceptions of PROEUR, productive models, markets, organizational capacities, leadership, agricultural water use, and impacts of PROEUR. At the end, perceptions of promoters and links were analyzed.

**Results**

As reported by the participants, the intervention activities in the second year of the pilot project were carried during 2009. In general, they consisted of biweekly meetings between farmers and promoters. In most cases, the promoters presented different topics related to the developmental model for group discussion. Table 2 shows common and different points of view between bee and crab organizations.

**Farmers’ perceptions**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Common points of view</th>
<th>Exclusively Bees</th>
<th>Exclusively Crabs</th>
</tr>
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<tbody>
<tr>
<td>Perceptions of PROEUR</td>
<td>They identify two major objectives of PROEUR: to work as a single enterprise and to improve the use of water. They are happy with the pilot project and appreciate a change towards a wider vision. They want to continue with PROEUR. No difficulties in the implementation of PROEUR were reported except for the little interest other farmers have showed in the project.</td>
<td>They have developed a good capacity to identify business opportunities and propose business projects.</td>
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<tr>
<td>Topic</td>
<td>Common points of view</td>
<td>Exclusively Bees</td>
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<tr>
<td>Productive models</td>
<td>Farmers count with pressurized watering systems and pay day laborers different from family members. They count with mechanized systems of production and quality assurance procedures. They take responsibility for directive functions in the enterprise and prefer producing high priced and stable-demanded products. They are willing to learn about different products as they know they will have to change crops over time to allow the soil to regenerate. They use to establish long-term commercial relations with intermediaries located in big markets. They know they have to invest in order to get profits. They are also willing to take credits and know how to use them. They are satisfied with their way of production, with the quality of their products and with their profits, and believe in that they will obtain better results in the future. They are interested in knowing more about markets and production systems, improve quality, and grow up. Some of them are making projects to industrialize their products and export to developed markets.</td>
<td>Farmers have been organized exclusively to obtain government subventions. They do not work as a single enterprise and do not reach economies of scale. Producers and their families work the land and only hire workers in harvest periods. Most farmers count with rolling watering systems and have to rent machinery. They do not have quality assurance procedures at all or depend exclusively from the “technology packages” offered by the government. They do not register they costs and finance their operation with alternative sources of money (e.g. remittances from sons in the United States). Most farmers sow corn and bean because they can sell them in local markets for human or animal consumption and consume them by themselves if necessary. Corn and bean are traditional crops that require little investment and can be stored easily. Most producers depend on the intermediary or coyote to sell their no-value-added products. They are so vulnerable to climate and market conditions. Farmers are not satisfied with their way of producing or their business outcomes. They try to minimize investment and losses.</td>
<td></td>
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<tr>
<td>Markets</td>
<td>Farmers know very little about competitors, clients and consumers.</td>
<td>Distribution is done through long-term relations with intermediaries in big markets. Producers assure supply and intermediaries assure price. Some farmers want to export to developed markets, and know that they have to improve production and quality, as well as develop appropriate brands and packages. They want to grow up and diversify markets. Quality and organizational capacities are signed out as main competitive advantages.</td>
<td>Selling is a “problem” that must be solved before the meager profits vanish, that is as soon as possible. Farmers sell their product to the higher bidder, and do not use to respect agreements with the intermediaries in terms of volume or price. They see each other as competitors and frequently establish price wars. Few farmers think that they need to learn how to sow different products, improve quality and reach new markets. Quality and organizational capacities are signed out as main disadvantages.</td>
</tr>
<tr>
<td>Organizational capacities</td>
<td>Farmers do not have alliances with other organizations of farmers. Some of them participate in public programs or public organisms to access</td>
<td>Some organizations finance their operations with credits that negotiate as individuals but pay as an organization. Although they register their costs, this information is only known by the organization.</td>
<td>Organizations finance their operations through membership fees (needed to have water) and fines. Some farmers think that these resources are not used with transparency and some leaders</td>
</tr>
</tbody>
</table>
As Table 1 shows, farmer organizations that work as single productive units are more productive, commercialize better and have a better water use than those organizations that do not work in the same way, regardless of the year when they initiated to participate in PROEUR. The differences between both productive models are significant. It seems to be that bee organizations make the most of the available resources, including PROEUR, while crab organizations advance too slowly.

A democratic leadership and trust appear as key elements in the construction of an effective farmer organization, capable of working in an organized manner to defend all farmers’ interests face to the intermediaries, reach economies of scale, and structure more ambitious projects.

**Perceptions of promoters and links**

Perceptions of promoters and links are shown in Table 2. Almost no common points of view were found.

<table>
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<tr>
<td></td>
<td>government financial subventions.</td>
<td>leader of the organization and the people in charge of registering, and it is rarely used for decision-taking proposals. By being part of the organization, farmers can have stable incomes, water supply and access to government subventions. Relations among farmers are generally positive. Most farmers feel satisfied with their organization.</td>
<td>profit from them. Only a few farmers have ordered registers of operations. By being part of the organization, farmers can have water supply and rent machinery at low cost. Most relations among farmers are of distrust and inequality; there are envy and hypocrisy. They think that most of their problems would solve with honest and capable leaders.</td>
</tr>
<tr>
<td>Leadership</td>
<td>Leaders have a democratic style and are opened to feedback; they share information with all members and work for an equitable distribution of benefits.</td>
<td></td>
<td>Most farmers do not trust their leaders neither support them. Some farmers think that leaders only take advantage of their position and lack of transparency in their administration.</td>
</tr>
<tr>
<td>Agricultural water use</td>
<td>They control the use of water through a logbook, although they do not know how much water spend by ton of product. They think they effectively use water but do not know how to improve its productivity. They propose to be trained in this specific competence.</td>
<td>Farmers report corruption in the use of water related to local political leaders. They propose to eradicate corruption, to renovate or modernize watering infrastructure, and to be ordered in the use of water and prorate costs of water pumping equitably.</td>
<td></td>
</tr>
<tr>
<td>Impacts of PROEUR</td>
<td>Farmers are improving their consciousness about the importance of preserving water and hydro infrastructure. They have a wider vision.</td>
<td>They have learned that quality and commercialization are key drivers to profit. They know they have to identify the appropriate place and time to sell their products, to assign responsibilities, and to take decisions based on accurate information.</td>
<td>They are improving their organizational capacities. They have learned to talk and reach agreements. They know that they have to learn how to analyze the market and know about administrative aspects.</td>
</tr>
</tbody>
</table>

Table 2

13
## Points of view of Promoters and Links

<table>
<thead>
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<tbody>
<tr>
<td>Perceptions of PROEUR</td>
<td>PROEUR complements</td>
<td>PROEUR help develop marketing capacities in farmers. It also helps farmers to channel technical assistance. The main strength of the pilot project is its capacity to adapt to the farmers’ condition.</td>
<td>PROEUR can help eradicate paternalism from the agricultural land.</td>
</tr>
<tr>
<td>Problems in PROEUR’s</td>
<td></td>
<td>Some promoters think that the scope of the pilot project and its indicators of impact are not sufficiently clear. Sometimes, the benefits of the pilot project are only for a few leaders. Occasionally, some groups (e.g., political leaders and coyotes) have opposed to the project considering it damages their interests.</td>
<td>Impacts are only tangible in the long run and the interest of farmers can decline.</td>
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<td>implementation</td>
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<td>Advances in the</td>
<td>Farmers are aware of</td>
<td>Farmers develop trust and learn to talk and to participate. They learn how to improve the use of the hydro infrastructure. Many organizations are modernizing their watering infrastructure, they are adopting pressurized systems.</td>
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<td>pilot project</td>
<td>the importance of</td>
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<td>organizing to build</td>
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<td>an enterprise. Some</td>
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<td>organizations are</td>
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<td>to look at the market.</td>
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<td>Farmers have</td>
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<td>improved their capacity</td>
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<td>to talk and reach</td>
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<td>agreements.</td>
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<td>Suggestions for improvement</td>
<td>The training of promoters must include not only the conceptual dimension of the developmental model but also its practical instrumentation. It is necessary to recognize that each organization advances at its pace and it is impossible that all of them reach the highest performance level at the end of the pilot project. Promoters must have a multidisciplinary team of consultants, it is impossible that a single promoter satisfies all farmers’ necessities.</td>
<td>Farmers must adopt a technology package in order to standardize quality and improve productivity.</td>
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Although both promoters and links think that PROEUR complement other projects from CONAGUA, promoters show a deeper interest in the development of commercial and organizational competency of farmers, while links are more interested in the productivity of the agricultural water use as well as in the modernization and appropriate use of the hydro infrastructure.

**Discussion**

In the quest for a sustainable development of Mexican agriculture, PROEUR has built human and social capital in farmer organizations through an entrepreneurial educational process. This condition is demonstrated by the fact that farmers
in the pilot project adopted the new principles, values, and attitudes required for them to succeed as entrepreneurs (Espinosa, 2007; McElwee, 2008b). All participants recognized an expansion in the vision of farmers and the shift towards a more reflective attitude to their economic activity (McElwee & Bosworth, 2010); they appear to be in the process of becoming more market and entrepreneurial oriented (Lauwere, 2004; Rudmann, Vesala, & Jäckel, 2008), and recognize the convenience of working as a group (Espinosa, 2007). Participants realized that reflection, teamwork, and leadership are necessary conditions for farmers to develop and improve their business (McElwee & Bosworth, 2010). A democratic leadership and trust are needed in the construction of effective farmer organizations.

Nevertheless, the development of the entrepreneurial and organizational competency of farmers is a long term process. On the one hand, the early impact of the intervention appear as only intangible assets, and almost no effects were reported in terms of production or market improvements during the second year of the pilot project. While bee organizations are in the process of adopting more proactive attitudes, crab organizations still reveal the type of dependence PROEUR is trying to counteract; a dependence that is in opposition to the Schumpeterian concept of entrepreneur as agent of change (Schumpeter, 2005). A sustained effort in the educational process is needed in order to achieve tangible results in terms of entrepreneurial and organizational competency.

A shared vision of the farmer as entrepreneur is important in land development. Clearly, agricultural development requires economic support and a greater emphasis on education and training (McElwee, 2006). In order to eradicate paternalism from the Mexican agricultural sector, not only must farmers see themselves as entrepreneurs, but also public officials and entrepreneurial development agencies must treat them as such.

Although the pilot project focuses on agricultural activities, the development of organizational and entrepreneurial competency of farmers can lead to innovation through new farm-based non-agricultural activities that could substitute declining incomes from agriculture.

The development of entrepreneurial and organizational competency in farmers is not an easy task. In spite of agrarian reformations, the Mexican agriculture remains on a subsistence level. Coinciding with recent investigations (McElwee, 2006; 2008b), several barriers to the development of agricultural businesses have been identified: small production scale; lack of capital; limited access to markets, distribution channels and business support; a low position in the "experience curve"; inadequate legislation and regulation; poor management skills on the part of farmers; isolation from learning centers; and a lack of entrepreneurial spirit. Additionally, lack of organization, a history of paternalism, corruption, the aging of farmers, and the lack of participation of women make complicated the development of the Mexican agricultural sector.
Conclusions

At the end of the second year of PROEUR, its objectives are clearer than in the beginning. Farmers recognize it as a project that aims to improve productivity of the agricultural water use and develop entrepreneurial and organizational competency of farmers in Irrigation Units. Entrepreneurship is perceived as an effective way to escape from poverty and paternalism. However, few tangible impacts have been reached.

The distinction between bee and crab organizations allows assessing the importance of associative behavior in the process of developing entrepreneurial and organizational competency of farmers in Mexico. Bee organizations show higher levels of performance in terms of profitability, use of water and entrepreneurial and organizational competency than crab organizations. Possibly, working together, as a single productive unit, is a necessary condition for development in the agricultural land. However, farmers’ organizations cannot be established by means of a decree. They require participation and a democratic leadership to succeed, and government’s intervention can be useful in this purpose.

References


McElwee, G. (2008a). Literature review and segmentation framework. In Ch. Rudmann (ed.), Entrepreneurial skills and their role in enhancing the relative independence of farmers. Results and recommendations from the research. Project Developing Entrepreneurial Skills of Farmers (pp. 19-26). Frick: Research Institute of Organic Agriculture FiBL.


